

E. B. Cobb
UL

Psychological

Monographs

General and Applied

**Opposites Structures, Defenses,
and Attitudes**

By

**Helen Peak, Barbara Muney,
and Margaret Clay**

University of Michigan

Price \$1.00

Peak, Muney, and Clay

Vol. 74
No. 8



Edited by Norman L. Munn

Published by the American Psychological Association, Inc.

Psychological Monographs: General and Applied

Combining the *Applied Psychology Monographs* and the *Archives of Psychology*
with the *Psychological Monographs*

NORMAN L. MUNN, Editor

Department of Psychology, Bowdoin College
Brunswick, Maine

Consulting Editors

ANNE ANASTASI
FRANK A. BEACH
ARNOLD M. BINDER
W. J. BROGDEN
ROBERT R. BUSH
JOHN F. DASHIELL
JAMES J. GIBSON
D. O. HEBB
EDNA HEIDBREDER
FRANCIS W. IRWIN

JAMES J. JENKINS
HAROLD E. JONES
DANIEL KATZ
BOYD MCCANDLESS
DONALD W. MACKINNON
QUINN MCNEMAR
LORRIN A. RIGGS
CARL R. ROGERS
RICHARD L. SOLOMON
ROSS STAGNER

Manuscripts and correspondence on editorial matters should be sent to the Editor. *Psychological Monographs* publishes comprehensive experimental investigations and other psychological studies which do not lend themselves to adequate presentation as journal articles. Major space is given to the author's original contribution; introductory and bibliographic materials, as well as statistical tables and graphs, must be kept within reasonable bounds. Tables, graphs, and appendix materials which deal with detail not essential to adequate presentation of the findings may be made available through the American Documentation Institute—for details of this procedure, see the *APA Publication Manual*. Preparation of manuscripts for publication as monographs should follow the procedure given in the *APA Publication Manual*. Publication in *Psychological Monographs* is free of cost to the author, except in cases where early publication is requested or author's alterations are made in galley proofs.

ARTHUR C. HOFFMAN, Managing Ed.; HELEN ORR, Promotion Mgr.; JANET LEBAN, Editorial Asst.

Correspondence on business matters should be addressed to the American Psychological Association, Inc., 1333 Sixteenth St., N.W., Washington 6, D.C. Address changes must arrive by the 10th of the month to take effect the following month. Undelivered copies resulting from address changes will not be replaced; subscribers should notify the post office that they will guarantee third-class forwarding postage.

Psychological Monographs: General and Applied

OPPOSITES STRUCTURES, DEFENSES, AND ATTITUDES¹

HELEN PEAK, BARBARA MUNNEY, AND MARGARET CLAY

University of Michigan

THIS is one of a series of studies in which various relations between psychological events have been examined as determinants of attitude and attitude change. The opposites relation is of interest for a number of reasons. In the first place, scattered bits of evidence (Woodworth, 1938; p. 344; Riess, 1946; Kreezer & Dalenbach, 1929) suggest that the opposites pattern may emerge as a result of the differentiation of a similarity dimension and consequently may involve greater distances between parts of the structure than do less differentiated similars. The nature of generalization within an opposites structure has been explored by one of us (Peak, 1958b, 1958c).

The opposites concept has also been invoked in discussions of personality characteristics, most particularly as an aspect of the authoritarian syndrome which has been said to involve extreme tendencies to dichotomize (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950). Again, the presence of an opposites structure is implicit in the descriptions of certain defense mechanisms. For example, projection, defined as the attribution of characteristics or feelings possessed by an individual to persons and objects in the outside world, probably requires a dichotomization of the concepts of the self and certain others, for it should be easier to blame others with impunity if they are highly differentiated from the self. Reaction formation or reversal, involving the overt expression of an act or feeling opposite the one being defended

against, also required examination from this point of view.

A pretest and an earlier study (Peak 1959a) indicated that certain measures assumed to reflect opposites structure tended to be positively correlated. The pretest also supported the notion that a preference for projection was positively related to opposites measures but that reversal or reaction formation preference, contrary to expectations, had a negative relation to these measures. The investigation to be reported sought additional evidence of a general tendency to dichotomize and examined the relations of opposites measures to certain defense preferences, to ingroup, outgroup, and self-attitudes, to scores on the California F Scale, and to other variables, with the expectation that methods of dealing with psychological distance might prove to be a common determinant of many such psychological processes.

Definition of Opposition

Similarity has usually been defined as a relationship in which events share one or more common properties. Opposed events, like similars, also have common properties, the principal difference residing in the greater psychological distance between opposites, a distance which has become sufficiently large to produce subcategories within the common dimension. But it should be noted that such events are opposites only as long as the emerging subcategories retain positions on the same dimension. Opposites must be alike in some degree. For example, clean and dirty may in some cases be seen as possessing different qualitative properties (subcategories), though from another point of view they are simply different amounts of the same property. Again, liking and disliking share the property of

¹ This investigation was carried out under a Contract between the Office of Naval Research and the University of Michigan, Project Nonr 1224 (10) NR 171-039. The senior author was in residence at the Center for Advanced Study in the Behavioral Sciences when this was written.

affect which appears to be structured as a bipolar continuum passing through a zero point representing no affect or evaluation. Presumably, any continuum made up of degrees of some property may under certain conditions become sufficiently differentiated so that its ends come to constitute subcategories and thus an opposites structure, provided some relation remains between the dichotomies.²

Defenses

In the following pages frequent reference will be made to the defenses of projection and reaction formation or reversal. These concepts have been assigned many different meanings in the literature. In this discussion they will be used to refer to processes of the kind described on p. 1 and identified by the Blum Defense Preference Inventory. The extent to which the results obtained here are generalizable to other measures of projection and reversal can be determined only by further observations.

Hypotheses

The following hypotheses were tested:

I. Different measures of opposites structure will tend to be positively related. Since no psychological characteristics are ever completely general over all situations, it was not expected that all such correlations would be significant. It was rather supposed that the correlations would be higher as the methods of measurement and the nature of the situations involved in the indices became more similar. For example, there should be a higher correlation between two indices based on deviations from the midpoint of a Semantic Differential scale than between two derived from such a scale in one case and from opposites associations in the other. Furthermore, similarity in content of the indices should also be related

to the size of the correlation between them. However, in the absence of pre-experimental commitments about the degree of similarity of each index to the others, no predictions were made about the relative amounts of correlation between specific measures here employed.

II. Preference for projection will be negatively correlated with preference for reversal or reaction formation. This relation has been observed in an earlier study by Goldstein (1952) and more recently in our pretest.

IIIa. Preference for projection will be positively related to a tendency to opposites structuring.

IIIb. Preference for reversal will be negatively related to opposites structuring.

We have already noted the rationale for Hypothesis IIIa; the prediction of IIIb was made on the basis of pretest results without a clear understanding of why this should be so. This will be discussed later.

IV. Those who prefer projection will have less favorable attitudes toward the outgroup and more favorable attitudes toward the ingroup than those who do not prefer projection; i.e., there will be a negative correlation between preference for projection and outgroup attitude and a positive correlation between ingroup attitude and projection. Furthermore, projection preference and difference in ingroup and outgroup attitudes will be positively correlated.

The greater negativity toward the outgroup and more favorable attitude toward the ingroup would follow from the familiar assumption that a person's hostility is displaced from the ingroup to the outgroup, which is at once hated and blamed for hating. The blame is said to be a rationalization to the effect that if outgroup members are hostile it is justifiable to return the hostility. Since the distance between ingroup and outgroup attitudes may be thought of as a measure of the tendency to dichotomize these concepts, the greater ingroup-outgroup difference predicted for the projector would be expected, for it is easier to express hostility to the outgroup with impunity if the outgroup and ingroups

² These relations are discussed in detail in another paper (Peak, 1958a), including the fact that under certain conditions the reactions to the terms of an opposites structure may cancel each other.

are clearly separate. It will be suggested later that the increased distance between in-group and outgroup for projectors, as well as the reversal results, could be explained in terms of a style of dealing with *disparity* or distance which is the basis of a motive system.

V. Those who prefer reversal will have more favorable outgroup attitudes than those who do not prefer it; there will be a positive correlation between outgroup attitudes and reversal preference.

Since this defense is defined as involving responses in a direction opposite to those which are being defended against, it was expected that positive attitudes toward the outgroup would accompany high reaction formation preference. Positive attitudes are predicted as defensive reactions because negative attitudes toward outgroups are assumed to be more likely to require defensiveness and reversal.

VI. Women will tend to prefer reversal as a defense more often than will men and men will prefer projection more often than will women. This tendency was observed in the pretest and the suggestion was made that such a difference might result from the greater social penalties attached to the overt aggressiveness that tends to accompany projection of hostility, while the more positive responses resulting from reaction formation defenses in a hostility situation would be the more approved pattern of feminine behavior.

PROCEDURE

Undergraduate students at the University of Michigan served as subjects (Ss). The data were collected during two one-hour sessions approximately one week apart. Men and women were tested at different times because of the difference in standard procedures on the Blacky Test for the two sexes. During the first session these tasks were performed: The Blacky Test, including the Defense Preference Inventory, the Kent-Rosanoff free association test, the California F Scale, and filling in a face sheet. At the second session Ss continued with the free association test. They sorted

108 statements about Negroes, judging the degree of favorableness which the statements represented. And finally they rated 24 concepts on Semantic Differential scales.

Blacky Test

Standard procedures were followed in administering Blum's Blacky Test³ and Defense Preference Inventory (Blum, 1950, 1956, 1957; Blum & Hunt, 1952). Ss wrote a story about each picture after the projection of that picture on the screen. All stories about the pictures were completed before the Defense Preference Inventory was given. This involved exposing each picture a second time, and asking Ss to rank five statements in the order of their appropriateness to the picture that had just been shown. Each of these standardized statements was intended to reflect a preference for either projection, reaction formation, avoidance, regression, or intellectualization. The statements referring to a given picture were ranked before the next picture was presented. A man administered the test to the men students; a woman, to the women students.

Conflict scores were derived from the stories which were coded by Blum's procedures. This coded material also provided data for an index of hostility. This was a count of the number of hostility items in responses to all the pictures.⁴ Hostility scores were also expressed as a percentage of the total "ideas" written in the stories. Rules were made for classifying all the items in the stories into unit ideas. The coder had no information about the hostility or conflict scores of the S whose protocol was being coded, nor was she familiar with the Blacky scoring method. The number of these idea units in all the stories was counted and divided by the number of stories.

It was planned at the outset that two DPI (Defense Preference Inventory) scores would be used in analyzing the data. (a) An average rank of all

³ We are grateful to Professor G. S. Blum for his advice on the use of the Blacky Test and to Mrs. Blum for training one of us to score the projective stories on which hostility scores and conflict scores were based.

⁴ Blum's General Hostility Pattern (1957, p. 12) was modified for this purpose by Barbara Muney and the hostility score included items from the stories which fell into these classes: overtly expressed oral hostility, hostile interaction with parents in an anal context, resentment against the parents for lack of attention in oedipal context, readiness to experience anger or to engage in aggressive behavior in response to discipline, overtly expressed hostility, feelings of rejection in comparison with sibling, attraction to the sibling rivalry situation, and certain denial statements implying hostility.

the statements reflecting any one class of defense in response to all pictures. Thus, the reversal score was based on the average rank of the reversal statements, the projection score on the average of all projection ranks, etc. Because of an error in the order of DPI statements for two of the pictures (X and XI) in one section of women students, total DPI scores were derived from nine of the eleven pictures. (b) An average of the ranks of each class of statement in response to those pictures which Blum identified as hostility situations.⁵ These hostility pictures were selected because it was thought likely that defense preferences based on hostility situations would have a clearer relation to ingroup-outgroup attitudes than would responses to the other pictures. This proved to be the case, although the direction of results was the same for both DPI indices. The major part of the analysis reported at this time is based on DPI scores derived from the hostility pictures, though reference will be made to certain relations involving DPI scores based on high conflict pictures. This is the third method of dealing with Blacky and one which Blum (1954) has employed.⁶

Association Test: 1

One hundred words were projected onto a screen one at a time, and Ss were instructed to write down on a sheet of paper the first word that came to mind. Approximately four seconds intervened between the exposure of each word. The list on this day consisted of the first 75 Kent-Rosanoff words plus 25 other words which were the same ones rated on Semantic Differential scales (see below).

California F Scale

Thirty items were administered in the usual manner, but the reported results are based on 21 ego-defensive items (Katz, McClintock, & Sarnoff,

1957), leaving out items placed by the authors of the scale (Adorno et al, 1950) in categories of "authoritarian submission" and "conventionalism." In those cases where both forms of the F scale were correlated with the same variables only small differences were obtained.⁷ High scores mean high F tendencies.

Association Test: 2

A second free association test, administered at the beginning of the second session, included the last 25 words of the Kent-Rosanoff list which had not been given the first day.

The association responses were scored as opposites, complements, and others. A score based on the total number of opposites associations to the Kent-Rosanoff list and to 25 additional words is reported.

Sorting Statements about Negroes

One hundred and eight statements about Negroes were sorted into nine piles on the basis of judgments of the extent to which the statements were favorable or unfavorable toward the Negro. The Hovland and Sherif (1952) procedure was followed except that Q instead of 11 categories were used. A bimodality index was determined by adding the number of items placed in categories 1+2+8+9, dividing the sum by 4 and subtracting the sum of statements in categories 3+4+5+6+7 divided by 5.

An analysis of the mean frequency of items sorted into each of the nine categories by Ss with bimodality scores in the upper half of the distribution and by those in the lower half showed the expected bimodal pattern in the first group, i.e., more items in end categories than in the middle. The persons with low bimodality scores produced rectangular distributions.

Semantic Differential Ratings

The last task in this session involved rating 24 concepts on 12 scales (Osgood, 1955).⁸ These concepts included a neutral filler word at the

⁵ These were Pictures II, III, IV, VII, and VIII.

⁶ After completing the analysis with these two DPI indices, two further indices were devised in order to discover for future use whether there were more effective ways of using DPI measures. The first supplemental method involved averaging the DPI ranks for those pictures on which a given S had a conflict score equal to or greater than two. The second supplementary score was based on the three pictures having the highest correlations with a criterion measure, the difference in ingroup minus outgroup attitude scores.

Intercorrelations of all items are found in the ONR Technical Report No. 7 (Peak, 1959b). Both supplementary scores yielded results in the same direction as DPI indices (a) and (b), but they had generally somewhat less significant relations to other variables.

⁷ Seven statements were added to the test near the beginning, phrased in such a way that disagreement would be expected of those with authoritarian tendencies. This was done in order to discourage a tendency to answer all questions simply by taking a set for or against the statements. These seven items were not scored.

⁸ The scales were labelled with these descriptive terms: loud-soft, bad-good*, small-large #, wide-narrow #, awful-nice*, pungent-bland, pull-push, distasteful-tasty*, deep-shallow #, toward-away from, angular-round, fair-unfair*. Evaluative scores were based on scales marked with an asterisk; potency scores on scales marked with #.

beginning, the six concepts from which ingroup and outgroup attitudes were derived (NEGRO ROOMMATE, NEGRO NEIGHBOR, FOREIGNER, FRIEND, FAMILY, AMERICANS), the ME concept plus the following: DANGER, SAFETY, CLEAN, DIRTY, HONESTY, DECEIT, MASTER, SERVANT, THRIFTY, WASTEFUL, SUCCESS, FAILURE, DOMINANT, SUBMISSIVE, ENEMY, EARLY. A random sequence of rating these concepts was used. Indices derived from these measures will be described with the results.

Aptitude Measures

Scores on the 1949 edition of the American Council of Education Tests were available for most of this sample. The tests had been given by the Michigan Bureau of Psychological Services early in the academic career of most of the students. A large proportion of our sample was from the Sophomore class at the time of the observations and had taken the test the year before.

RESULTS

Aptitude as a Variable

The aptitude scores of subgroups resulting from dividing the sample simultaneously on projection and on reversal scores are found in Table 5. There were no reliable differences in the aptitude scores of the subgroups when men and women were treated separately. Since the mean aptitude scores of men and women were not significantly different, they have been combined in order to test the difference in the aptitude scores of DPI subgroups.⁹ It will be seen in Table 5 that those who had high scores on both projection and reversal (the high projection-high reversal group) had a significantly lower aptitude mean than did the low-low group; and the low projection-high reversal group had lower aptitude scores than the low-low group. This suggests a negative correlation of aptitude and reaction formation. However, since there was not a significant difference in mean aptitude scores of the high projection-low reversal and low-high groups, it may be concluded that aptitude was probably not

involved in comparisons of the differential effects of reversal (reaction formation) and projection.¹⁰

The significant relations (Pearson correlations) of aptitude with other variables were for men: ingroup attitude (-.48), ingroup attitude minus attitude toward self (-.30), the total number of ideas expressed in the Blacky stories (.31), and ingroup deviation scores (-.34). For women, correlation with the total number of ideas was close to significance (.27) and the correlation with opposites associations (-.31) was significant. Partial correlations have been determined for all the significant relationships between these variables (significantly related to aptitude) and other variables, holding aptitude constant. In no case did the correlations in question fall below significance as a result of this partialing procedure.

Interrelations among Opposites Measures: Hypothesis I

The opposites measures to be reported include the following: the frequency of opposites associations, the bimodality index derived from sorting statements about the outgroup, and a number of indices based on Semantic Differential ratings of 24 concepts.

Semantic differential measures. The first step involved analyzing the interscale correlations for each of 24 concepts. That is to say, the ratings of a given concept on each SD scale were correlated with ratings on every other one of the 12 scales. There were consequently 66 correlations for each of the 24 concepts. The results confirmed the close relations among the different evaluative scales⁸ already combined as measures of attitude and also demonstrated consistently high correlations between three other scales for each of the 24 concepts. These were the scales designated by the terms: LARGE-SMALL, WIDE-NARROW, and DEEP-SHALLOW, which became the basis of potency

⁹ Probabilities of .10 or less are reported in all cases. Unless otherwise indicated, these refer to two-tailed probabilities. When variances were not homogeneous, degrees of freedom of *t* scores were determined by the method described in Dixon and Massey (1951, pp. 104-5).

¹⁰ Aptitude had a correlation of -.16 (men) and -.01 (women) with reversal and -.09 (men) and -.07 (women) with projection. None of these correlations is significant.

ratings. Two kinds of indices were derived from these SD scores: deviation scores and difference scores.

a. Deviation scores. The potency and evaluation scores of each person were converted to deviation scores, the distance from the midpoint of the scale to the point of rating without regard to sign. These deviations on the four evaluative scales were summed for each concept to produce the evaluative deviation score for that concept; deviations on the potency scales summed over scales constituted the potency deviation scores. The potency deviation scores and evaluation deviation scores were then correlated over 19 concepts (excluding ingroup and outgroup concepts). Table 1 presents the proportion of 171 intercorrelations of potency scores that were positive and that were significant in a positive direction; the proportion of the 171 intercorrelations of evaluation scores and of the 361 potency and evaluation correlations (19 concepts each with an evaluation and a potency score) that fell into these classes.

It will be seen that 100% of the intercorrelations of potency deviations were positive and 92% and 82% of potency correlations were significantly positive for men and women, respectively. The correlations were somewhat smaller among evaluation

scores but they were still highly significant in the positive direction. Even when potency deviations were correlated with evaluation, the proportion of positive correlations was far in excess of chance.

These results support Hypothesis I for this set of measures by showing that different concepts rated on the same and different scales have a tendency to deviate in the same degree and in the same direction.

In Tables 2 and 3 deviation scores have produced six independent indices: (a) average deviations on evaluative scales of concepts that are clearly opposites (Ev_{op}): DIRTY, CLEAN, HONESTY, DECEIT, THRIFTY, WASTEFUL; (b) average deviations on evaluative scales of concepts that do not have clear opposites in the list (Ev_{nop}): ME, ENEMY, EARLY, SERVANT, MASTER; (c) average deviations on potency scales of concepts in (a) referred to as Po_{op} ; (d) average potency deviations of the concepts in (b) referred to as Po_{nop} ; (e) average deviation on evaluative scales of ingroup concepts; and (f) average deviation on evaluative scales of outgroup concepts.

b. Difference scores. It was thought possible that distance between ratings of pairs of opposite concepts might be an appropriate measure of opposites structuring and a general average difference score was calculated, the mean difference in evaluative ratings of six pairs of opposite concepts without regard to sign ($Av\ Diff\ G$).

In addition, four other difference scores have been employed: (a) Average difference on evaluative scales between those opposite concepts that might be thought of as having an anal reference (THRIFT-WASTEFULNESS, HONESTY-DECEIT, CLEAN-DIRTY). This score is called Ev_a . (b) Difference on evaluative scales between pairs of nonanal opposites (SAFETY-DANGER, SUCCESS-FAILURE, DOMINANCE-SUBMISSION). These are labelled Ev_{na} . (c) Difference on potency scales for the concepts in (a), called Po_a . (d) Difference on potency scales for the concepts named in (b) above, called Po_{na} .

c. Interrelations among semantic differential indices. Although the results of

TABLE 1

PERCENTAGE OF POSITIVE AND SIGNIFICANT CORRELATIONS BETWEEN DEVIATION SCORES OF 19 CONCEPTS ON POTENCY AND EVALUATION SCALES

	Evaluation Correlations	Potency Correlations	Evaluation and Potency
Positive	M 98.2%	100%	94.4%
	W 95.9	100	94.4
Significantly Positive*	M 69.5	92.0	31.0
	W 53.8	82.4	42.9
Number r 's	171	171	361 Total $N = 703$

* $p < .05$.

Table 1 suggest a tendency to rate concepts of various kinds similarly on different kinds of scales, it was important to examine possible difference in degree of relationship when different classes of concepts were rated and when concepts were rated on evaluative or potency scales.

When average correlations of difference scores were compared, they were approximately in this order: highest, different concepts rated on the same evaluation scales ($r = .62^*$ and $.53^*$ for men and women, respectively); next highest were correlations of the same concepts rated on potency and on evaluation scales (i.e., on different scales, r 's = $.28^*$ and $.32^*$, respectively, for men and women); then, different concepts on the same potency scales (r 's = $.31^*$ and $.01$); finally, different concepts on different scales ($r = .19$ and $-.01$, $.16$ and $.07$).

The results were similar for deviation scores. When scales were the same, mean correlations were highest even though the concepts rated were different ($r = .67^*$ and $.68^*$ in men and in women for evaluation scales, and $.74^*$ and $.69^*$ for potency); next were the correlations between indices based on the same concepts rated on different scales ($.40^*$ and $.66^*$ when the concepts were opposites and $.60^*$ and $.65^*$ when they were nonopposites); finally, the lowest correlations appeared when both concepts and scales were different ($.46^*$ and $.40^*$ between potency nonopposites and evaluation opposites and $.33^*$ and $.61^*$ between potency opposites and evaluation nonopposites). In all these correlations the number of cases was equal to 52 for men and 51 for women, and the correlations which were significant are starred. Correlations were converted to z scores before averaging.

Opposites associations. There was evidence of a positive relation between frequency of opposites associations when different stimulus words were used. The number of opposite responses to 100 Kent-Rosanoff words was correlated with the number of opposite responses to 25 other word stimuli. For both men and women this relation was positive and significant ($p < .001$). When the relation of responses to words given on the first day and on the

second day (one week later) was determined, the chi squares were again significant and even higher. This makes it appear that a transient set to respond with opposites on some one occasion was not responsible for the correlation.

Bimodality sorts. It should be mentioned at this time that an earlier study (Peak, 1959a) has demonstrated a significant relation in both men and women between the bimodality scores derived from sorting two separate sets of items, one set referring to Negroes and the other set to the members of the ingroup. Correlations between these bimodality scores were $.57$ and $.72$ for men and women, respectively, both coefficients being significant at the $.01$ level.

Interrelations of opposites associations, semantic differential indices, and bimodality indices. Table 2 presents the correlations of each of the indices based on Semantic Differential ratings with the outgroup bimodality index and with the frequency of opposites associations. Since the Semantic Differential deviation scores and difference scores were derived from overlapping data, one or the other must be counted in summing up the relations.

In men, 12 of the 13 correlations between Semantic Differential deviation indices and the bimodality index, between the SD deviation indices and opposites associations, and between opposites and bimodality were positive; 5 of the 13 were significant relations. For women 8 of the 13 were positive, none significant. If in this group of indices only those Semantic Differential indices were counted which involved evaluation scales, 9 of the 9 opposite indices were positively correlated in men; 5 of these were significant. In women 6 of the 9 were positive, none significant.

When the Semantic Differential difference indices were counted along with the other opposites indices (bimodality and opposites associations), then 10 out of the 11 correlations were positive for men; 3 of these were significant. In women 8 of 11 were positive, none significant. Once again when potency scores were omitted, 7 out of 7 were positive in men, 3 being significant.

Six out of 7 were positive in women, none significant.

In summary, Hypothesis I was supported clearly by the results from the male sample: a large proportion of the relations among Semantic Differential ratings were significantly positive; relations between bimodality indices were significantly positive, as were relations between frequency of opposite reactions to different lists of words even when tested on different days. Thirty-eight per cent of the relations among bimodality indices, opposites associations, and Semantic Differential indices were significantly positive at the .05 level when SD deviation

indices were employed. In women Hypothesis I was supported strongly by the correlations among Semantic Differential measures as well as between the two bimodality sorts and between the two measures of opposites associations. There were no significant positive correlations between the three types of measures (opposites, bimodality, and SD) for women. For both men and women, correlations between measures became smaller when measuring methods differed, when concepts were different, or when different scales were used. Opposites association measures were less clearly related to Semantic Differential measures and

TABLE 2
GENERALITY OF OPPOSITES TENDENCIES-CORRELATIONS (PEARSON)

Bimodality- Opposites Assoc	M .18 (50) ^a W .20 (47) ^b		
Bimodality- Outgroup Dev	M .32* W .12	Opp Assoc- Outgroup Dev	M .21 $\eta = .46^{**}$ W -.14
Bimodality- Ingroup Dev	M .45** W .02	Opp Assoc- Ingroup Dev	M .02 W .04
Bimodality- Ev _{op} Dev	M .36* W -.01	Opp Assoc- Ev _{op} Dev	M .10 W .20
Bimodality- EvNoP Dev	M .29* W .08	Opp Assoc- EvNoP Dev	M .03 W -.03
Bimodality- Po _{op} Dev	M .17 W .02	Opp Assoc- Po _{op} Dev	M .15 W .08
Bimodality- PoNoP Dev	M .24 W -.10	Opp Assoc- PoNoP Dev	M -.01 W -.01
Bimodality- Av Diff G	M .31* W .03	Opp. Assoc- Av Diff G	M .42** W .16
Bimodality- Diff Ev _A	M .37* W .01	Opp Assoc- Diff Ev _A	M .16 W .21
Bimodality- Diff Ev _{NA}	M .20 W -.17	Opp Assoc- Diff Ev _{NA}	M .01 W .12
Bimodality- Diff Po _A	M .08 W .06	Opp Assoc- Diff Po _A	M -.16 W -.08
Bimodality- Diff Po _{NA}	M .01 W -.08	Opp Assoc Diff Po _{NA}	M .02 W .06

^a N (men) = 52 except for opposites assoc, N = 50.

^b N (women) = 51 except for opposites assoc, N = 47.

* $p < .05$.

** $p < .01$.

to bimodality measures than the latter two were to each other. Moreover, bimodality indices were less clearly related to potency measures than to evaluation.

Relationships among Defense Preferences: Hypothesis II

Hypothesis II was supported by the fact that there was a significant negative relation between preference for projection and preference for reaction formation or reversal.

Because DPI scores were derived from ranks of five statements made after the presentation of each Blacky picture, each statement representing preference for one of the five defenses, a spurious negative correlation would be expected among the scores. It was necessary, therefore, to find a way of removing this correlation in order to determine the actual relation among DPI preferences.¹¹ First, the average rank of projection statements and the average rank of those reflecting reversal preference were determined for each person and a scatter plot was made of the relation of the two variables, projection and reversal. Since five ranks were possible this resulted in a 5 by 5 table.¹² This table was then reduced to 4 by 5 categories by making one variable (viz., reversal) assume only four values. Thus, if a person's average projection score was highest (Rank 1) and reversal second, in the reduced table he retained Rank 1 on projection but was also given Rank 1 on reversal; if he had Rank 1 on projection and 4 on reversal, projection remained unchanged but reversal was converted to Rank 3: if projection was Rank 2 and reversal 1, these two ranks were not changed, but reversal Ranks 3, 4, and 5 became 2, 3, and 4, respectively. And so on. In other words, the "reduced" variable took a rank

of 1, 2, 3, or 4, columns or rows keeping their original order but having ranks independent of those taken by the first variable. A second 4 by 5 table was built from the same data by collapsing the other variable, projection, into four categories in the same fashion, while reversal retained the original five categories.

These four by five tables were analyzed by the Mood maximum likelihood chi square method. For men the chi squares were significant at less than the .05 level for both tables relating projection and reversal; for women the corresponding probabilities were $< .02$ and $< .01$. In order to demonstrate the direction of this relationship the categories were further collapsed to two by two tables. Men and women were combined since the relation between the variables was the same. Phi coefficients for the two tables were $-.44$ and $-.38$.¹³ The chi squares from which these coefficients were derived were significant at less than the .001 level.

Avoidance and reaction formation were positively related, the chi square being significant for women but not for men. Preference for projection was positively related to preference for regression ($p < .05$ for men and $< .10$ for women.)

Hostility and Defenses

No specific predictions were made regarding the relation of defense preference and hostility, but it is of interest that projection was positively related to the number of hostility items appearing in the stories (r 's = $.34$ and $.32$ in men and women, respectively; significant at the .05 level). Reversal was, on the other hand, negatively correlated with the number of hostility items (r 's = $-.37$ and $-.36$, both significant).

It will be explained in the discussion that evidence of several kinds led to an hypothesis that reversal tended to be associated with restriction of psychological distance and difference between certain categories with consequent emphasis on category simi-

¹¹ John M. Gilbert of the Center for Advanced Study in the Behavioral Sciences suggested this method of handling the problem. We are also indebted to him for help in programming our data for computer runs.

¹² Tied average ranks were assigned to one of the adjacent categories by a table of random numbers.

¹³ With the given marginals, maximum phi for the first table was .940; for the second, .867.

larity. It was hypothesized that this might be expected to result in reduced output of Blacky items, because the classification of many ideas as the same would result in fewer total ideas. This proved to be the case, for the total number of ideas produced was negatively related to reversal preference (r 's = $-.24$ and $-.31$ with $p < .10$ for men and $< .05$ for women.) The relations to projection preference were positive and low (r = $.06$ and $.14$ for men and for women). The question then arose whether the association of number of hostile ideas with defense preferences was independent of the relation between total ideas produced and defense scores. The positive relation of projection and percentage of hostility items was significant for men (r = $.34$, $p < .05$) and nearly so for women (r = $.26$ with $p < .10$). However, the negative relation of hostility and reversal preference dropped when hostility was expressed as a percentage of the total output (r 's = $-.27$ with $p < .10$ and $-.17$ with $p > .10$ for men and women, respectively).

Table 5 reveals these same differences somewhat more clearly. This Table represents the mean scores of the variables within groups resulting from dividing the sample simultaneously on the basis of projection and reversal preferences derived from hostility pictures. Men with low projection and high reversal preferences produced significantly fewer total ideas than did those with low scores on both ($p < .05$); also, those with low projection and low reversal scores produced significantly more ideas than those with high scores on both ($p < .01$). High-low scorers were more productive than were those high on both projection and reversal, but not significantly so. The percentage of hostility items was significantly greater in high projection-low reversal conditions than in the low-high condition ($p < .05$) and the high-low group also produced a greater percentage of hostility items than did the low-low group ($p < .10$). This analysis, like that based on the correlation coefficient, suggests a closer relation between per cent hostility and projection than between per cent hostility and reversal.

Women high-high scorers produced fewer ideas than did those with high-low scores ($p < .05$); high-low scorers expressed more than those low on projection and high on reversal ($p < .01$). Results for the percentage of hostility items were in the same direction as for the male sample but the differences between group means were not significant for women.

Defenses and Opposites: Hypothesis III

The relations between opposites measures and defense preference have been analyzed by several different methods. There were, first of all, the different opposites indices to be taken into account, as well as different indices of defense preference. In the second place, the relations between defense preference and opposites scores have been expressed in two ways: in terms of Pearson correlation coefficients and by comparing the means of opposites indices in the four groups resulting from dividing the sample simultaneously on reaction formation scores and on projection scores. Only the comparison of means is reported at this time. Correlation coefficients were not markedly different in their implications from differences in means of the groups, but where there were differences the means are probably more accurate because the level of reversal and projection scores was controlled for each comparison.

Tables 3 and 4 present the means for the four DPI groups resulting from dividing the sample simultaneously on reversal and on projection. In Table 3, DPI indices from hostility pictures were used; in Table 4, the indices were those derived from reactions to those Blacky pictures which showed evidence of conflict for the individual when the story written about the picture was scored for conflict by the Blum (1950) method.

It was predicted in Hypothesis III that high projection scores would be associated with high opposite scores and high reversal scores with low opposite scores. Therefore, those high on projection and high on reaction formation should have higher opposites scores than the low-high DPI group, pro-

jection varying and reversal constant and high. Moreover, high-low scorers should have larger opposites scores than low-low scorers, indicating the effects of projection with reaction formation constant and low. On the other hand, those with high projec-

tion and high reversal preference should have lower opposites scores than the high-low group, and the low-high group should have smaller scores than the low-low *Ss*, both of these comparisons indicating the effects of reversal preference with projec-

TABLE 3
OPPOSITE SCORES OF DPI GROUPS
(Hostility Pictures)

		High Proj- High R I		High Proj- Low R II		Low Proj- High R III		Low Proj- Low R IV		Significance and Direction of Difference
		Mean	s	Mean	s	Mean	s	Mean	s	
Bimodality	M	15.8	5.2	17.2	5.6	14.9	7.0	14.5	3.1	I > IV**
	F	20.2	7.9	16.5	6.4	15.3	4.4	13.2	3.0	
Opp Assoc	M	27.3	13.9	21.1	8.8	26.3	8.7	27.9	9.7	II < IV*
	F	20.8	11.6	22.6	13.6	23.4	12.3	26.5	10.5	
OG Dev	M	21.4	7.9	30.7	12.3	27.5	16.1	25.9	14.5	I < II*
	F	33.7	14.4	35.9	12.3	29.8	10.5	29.0	7.6	
IG Dev	M	36.9	12.9	47.1	9.4	40.9	11.4	39.7	13.9	I < II**
	F	52.8	6.3	51.3	7.7	47.6	9.1	49.7	9.1	
Evopp Dev	M	41.0	11.3	49.0	6.3	43.4	9.1	44.2	8.9	II > III**
	F	52.2	6.1	51.3	7.4	46.7	9.6	48.2	7.1	
EvNoP Dev	M	24.9	7.5	32.4	5.8	28.7	8.4	30.3	8.4	I < II**
	F	34.3	8.3	34.8	7.6	32.2	8.5	32.2	5.5	
PO _{op} Dev	M	25.0	6.7	26.1	8.7	22.1	9.8	29.9	6.5	III > IV***
	F	30.8	8.6	31.3	9.5	29.3	8.3	33.2	7.5	
POnoP Dev	M	18.3	6.1	19.9	6.4	17.1	6.5	20.0	3.6	
	F	22.2	8.3	22.2	7.2	21.3	5.8	24.2	6.3	
EVNA	M	18.7	7.2	23.7	7.2	20.2	5.3	20.9	4.2	
	F	24.3	4.0	24.6	7.4	24.1	7.1	23.7	6.4	
EVA	M	26.3	8.4	29.9	6.5	28.3	6.8	28.9	6.0	
	F	34.5	4.2	33.2	6.3	29.7	7.4	30.8	6.7	
PONA	M	4.7	2.4	5.8	3.0	6.0	1.5	5.8	2.7	I < IV***; I < III**
	F	4.5	2.2	6.5	3.0	7.1	2.7	8.2	1.9	
POA	M	2.6	1.1	3.6	2.2	3.2	1.6	3.5	1.7	I > II**
	F	4.2	1.0	2.9	1.6	3.8	1.8	2.8	1.8	
N	M	7		16		17		10		
	F	6		17		20		6		

* $p < .10$.

** $p < .05$.

*** $p < .01$.

tion held constant. Finally, the group with high projection scores and low reversal scores should have higher opposite scores than the one with low-high scores, both defense preferences varying in opposite directions.

The relative size of the opposites scores of the above pairs has been determined for men and for women, for each opposites measure. The number of differences in the predicted direction has been counted for two sets of comparisons, the first using Semantic Differential indices derived from *deviation* scores, bimodality scores, and opposites associations, and the second including the Semantic Differential *difference* scores along with bimodality and opposites associations. These counts indicate the proportion of the comparisons of mean opposites scores for the DPI groups with different defense preferences which were in the direction predicted by Hypothesis III. In the section following, DPI indices based on hostility pictures were used to determine groups; in the next section after that, indices derived from conflict pictures were employed.

Groups determined by hostility DPI's. In the first count using *deviation* scores, bimodality, and opposites associations *women* showed no significant predicted differences in mean opposite scores of the different DPI groups. However, 12 of 16 comparisons in which projection was varying, with reversal constant, were in the predicted direction. By the sign test this number of differences in one direction would occur by chance less than five per cent of the time ($p = .038$, one-tailed). With reversal varying, there was not a significant number of differences in the predicted direction. For the comparison of the high projection-low reversal group with the low projection-high reversal group seven of eight differences in means were as predicted ($p = .035$, one-tailed).

For the *male* sample using *deviation* scores, bimodality, and opposites associations, 5 of the 16 comparisons indicated the differences in opposites scores to be significant in the predicted direction, and in all of these significant comparisons, reversal was

varying. Twelve of the 16 comparisons between high and low reaction formation means with projection constant were in the predicted direction ($p = .038$, one-tailed). Nine of 16 were in the predicted direction with projection varying and reversal constant. Comparing the high projection-low reversal means with low-high means, seven of eight were as predicted ($p = .035$, one-tailed).

On the second count, including *difference* scores for measures involving Semantic Differential ratings, plus bimodality and opposites associations, the results were in the same direction but less clear. Only when the average difference score was the measure was there a significant predicted difference in a Semantic Differential measure in men. One such measure was significant for women, P_{0na} . In men, 6 of 12 comparisons were in the predicted direction with projection varying; 9 of 12 with reversal varying ($p = .073$, one-tailed). In women, none of the frequencies exceeded chance expectation, when difference scores were involved.

Groups determined by conflict DPI's. When the sample was divided on the basis of DPI's calculated only from the pictures on which an *S* showed evidences of conflict, then the results changed in two ways (Table 4). The relations of DPI scores to the opposites measures became somewhat more significant and the results for men and women were more alike in that there was no difference in the magnitude of the effect of projection and reversal on opposite scores for men and women. The results for men and women have been combined, therefore, in testing the frequencies of relations in predicted directions.

Using the *deviation* measures, bimodality scores and opposites association scores, 23 of 32 comparisons were as predicted when projection was varying and reversal constant ($p < .02$); 24 of 32 were as predicted when reversal was varying and projection held constant ($p < .01$). When men and women were treated separately, $p = .038$ and $.105$ with projection varying; with reversal varying, $p = .011$ and $.105$ for men and women, respectively. In 7 of 8 comparisons ($p = .035$) for men and 6 of 8

($p = .145$) for women, high projection-low reversal means were greater than low projection-high reversal means.

With *difference* scores replacing deviation scores the result were in the same direction, but the frequency of the differences in the predicted direction did not exceed chance.

In women there were four significant differences in the predicted direction out of 16 comparisons: bimodality scores were larger for the high-projection low reversal group than for the high-high group, scores for the high-low group were greater than for low-lows and scores for the high-low group were greater than for the low-high

TABLE 4
OPPOSITE SCORES OF DPI GROUPS
(Conflict Pictures)

		High Proj. High R I		High Proj. Low R II		Low Proj. High R III		Low Proj. Low R IV		Significance and Direction of Differences
		Mean	s	Mean	s	Mean	s	Mean	s	
Bimodality	M	13.9	3.5	16.2	6.0	15.5	6.5	15.7	5.2	I < II*; II > III*; II > IV**
	F	15.2	4.6	18.9	6.0	14.9	6.0	14.0	4.2	
Opp Assoc	M	26.7	8.9	24.2	12.5	27.2	10.9	20.4	10.9	I > II*; I > III***
	F	29.5	6.4	23.6	11.6	20.8	12.9	22.2	15.4	
OG Dev	M	23.0	11.5	30.1	11.8	24.1	14.9	28.6	16.9	
	F	29.3	11.0	35.6	9.6	31.9	14.9	31.4	9.3	
IG Dev	M	41.5	13.2	44.4	9.9	36.4	11.4	49.6	9.9	II > III**; III < IV*** I < IV*
	F	47.1	9.5	50.3	7.5	49.5	9.5	53.2	4.7	
Ev _{opp} Dev	M	46.5	7.8	48.2	7.8	38.9	8.1	47.9	8.9	I > III**; II > III***; III < IV**
	F	49.2	7.1	50.0	7.8	48.5	10.1	49.0	8.9	
Ev _{NoP} Dev	M	28.1	4.3	32.8	6.4	25.3	8.6	31.1	7.5	I < II**; II > III***; III < IV*
	F	33.2	8.5	34.1	7.5	33.0	8.7	33.2	6.3	
Po _{NP} Dev	M	28.1	8.4	28.9	8.1	21.9	8.1	21.5	7.7	I > III*; III < II***; II > IV**
	F	31.6	8.5	29.8	9.3	30.9	8.7	31.0	8.3	
Po _{NoP} Dev	M	18.7	5.2	20.9	5.4	16.6	6.3	17.2	5.1	II > III**
	F	23.0	6.5	20.4	7.5	22.7	6.5	23.1	4.5	
EV _{NA}	M	21.6	4.9	23.1	6.7	17.2	5.9	23.2	3.1	I > III*; II > III***; III < IV** I < IV*
	F	22.2	5.7	23.9	6.7	24.9	7.0	27.4	7.2	
E _{VA}	M	30.5	5.4	30.1	7.2	25.2	6.1	30.0	6.8	I > III**; II > III**
	F	31.5	5.9	32.6	6.2	31.1	8.8	31.1	5.5	
Po _{NA}	M	7.4	3.2	5.3	2.7	5.1	1.5	6.2	2.8	I > III* I < III*; I < IV*
	F	5.5	2.6	6.6	2.9	7.5	3.2	7.5	1.9	
Po _A	M	3.4	2.1	3.2	1.8	3.3	1.7	3.5	1.9	
	F	3.8	2.6	2.9	1.5	3.3	1.8	4.0	1.2	

* $p < .10$.

** $p < .05$.

*** $p < .01$.

group; the number of opposite associations in high-high scores was greater than in the low-high group. In men, 12 of 16 comparisons were significant in the predicted direction when deviation indices were involved and 6 of 12 with difference scores.

It must be concluded that Hypothesis III, though supported in part, needs certain qualifications. It is necessary to sample more systematically the content areas tapped by the various opposites measures described in this section in order to determine what exactly was responsible for the higher association of the opposites series with defense preferences expressed in areas of conflict than in response to hostility pictures. It appears likely that preference for reversal is associated with low opposites scores and projection with high ones when preferences are determined in situations comparable to those involved in the opposites measures. This is the plausible explanation of the closer relation between ingroup-outgroup difference and DPI scores based on hostility pictures; both the attitude measures and hostility pictures presumably produced reactions to hostility. It can only be surmised that the general opposites measures of Tables 3 and 4 activated categories that overlapped with conflict pictures to a greater degree than with hostility pictures.

A second qualification is one that must be stated for almost every hypothesis in this study. Hypothesis III was more strongly supported for men than for women, though tendencies were in the same direction for both.

Finally, a comment should be made on the more significant relations obtained with SD deviation scores than with SD difference scores. Since the latter were derived from differences in Semantic Differential ratings of pairs of concepts assumed to be opposites, a tendency to extreme reactions to both concepts would be obscured if Ss did not place the two concepts on opposite sides of the scales. This tended to be the case, for example, for the pair SAFETY-DANGER. Men, in particular, did not always rate DANGER as bad, in which case the difference between the DANGER and SAFETY

score tended to be small, even when both scores were extreme. This suggests the need for further attention to the nature of the structures being analyzed.

Defense Preference and Attitude: Hypotheses IV and V

Here, as in other sections, relationships have been analyzed by correlating the variables and by comparing the means of portions of the sample which have known levels of preference for reversal and projection. The latter analysis is reported at this time.

Table 5 presents means of the important variables for each of the following groups of Ss: high projection-high reversal, high projection-low reversal, low projection-high reversal, and low on both defenses. Figure 1 indicates the means of the attitude variables in men and women for each of these DPI groups. The horizontal lines represent evaluative scales with the mean ingroup (family, friends, Americans), ME, and outgroup positions (Negro neighbors, Negro roommate, foreigner) for each DPI group. The attitude positions of different groups are joined by solid lines for men and by dotted lines for women.

The significant differences in these variables will be indicated in the succeeding paragraphs and their implications discussed in the final section.

Ingroup attitudes. Only one comparison of ingroup attitudes in the different DPI groups reached an acceptable level of sig-

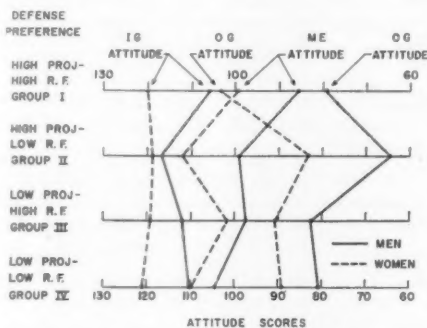


FIG. 1. Relation of attitudes and difference in attitudes to defense preference.

nificance: in women with reversal constant and high, there were more favorable attitudes toward the ingroup when projection was high than when it was low ($p < .05$), suggesting the predicted effect of projection on ingroup attitude. In men with projection

constant and high, there were more favorable attitudes toward the ingroup when reversal preference was low than when it was high ($p < .10$), which implies that reversal was making the ingroup attitude less favorable.

TABLE 5
AVERAGES OF VARIABLES AS FUNCTION OF REVERSAL AND PROJECTION
(Hostility Pictures)

		High Proj- High R I		High Proj- Low R II		Low Proj- High R III		Low Proj- Low R IV		P's between Variables Indicated
		Mean	s	Mean	s	Mean	s	Mean	s	
Ingroup Attitude	M	106.6	14.7	117.2	10.6	112.2	12.0	110.5	15.2	I < II ^a I > III ^b
	W	125.8	6.2	123.2	7.8	119.0	9.0	120.3	11.7	
ME Attitude	M	85.7	22.6	99.3	19.3	97.4	18.1	104.4	16.5	I < II ^a
	W	99.9	15.1	111.9	14.2	101.7	17.3	105.0	13.3	
Outgroup Attitude	M	79.4	13.1	63.3	23.2	82.7	25.1	80.2	18.5	I > II ^b ; II < IV ^d ; II < III ^b I > II ^b
	W	103.0	16.2	82.8	27.8	90.5	22.7	89.5	11.8	
IG-ME Attitude	M	24.6	13.9	20.2	16.1	19.4	11.1	10.7	8.0	I > IV ^b ; III > IV ^d I > II ^a ; I > IV ^d ; III > IV ^d
	W	25.8	14.2	14.4	10.5	20.7	14.0	15.3	8.4	
	C	25.1	13.5	17.1	13.4	20.1	12.1	12.4	8.2	
ME-OG Attitude	M	24.0	14.2	36.2	22.6	25.5	18.1	26.2	25.2	I < II ^b I < II ^c ; II > III ^a
	W	14.3	10.1	31.0	25.6	24.1	22.0	23.5	19.5	
	C	19.5	13.0	33.4	24.1	24.8	20.1	25.2	22.8	
IG-OG Attitude	M	27.1	18.7	54.3	23.8	30.2	21.6	30.3	22.4	I < II ^d ; II > III ^d ; II > IV ^c I < II ^d ; II > III ^c ; II > IV ^b
	W	26.1	15.4	38.7	27.4	33.3	21.9	30.8	21.4	
	C	26.7	16.6	45.9	26.7	31.9	21.5	30.5	21.5	
Aptitude	M	120.7	14.0	125.7	18.5	123.1	21.7	132.6	18.7	I < IV ^b ; III < IV ^b
	W	113.6	15.4	123.9	20.2	119.8	20.4	134.0	17.7	
	C	117.4	14.4	124.7	19.3	121.3	20.7	133.1	17.8	
% Hostility Ideas/Story	M	4.6	2.0	4.8	1.9	3.6	1.1	3.8	1.0	II > IV ^a ; II > III ^b
	W	3.8	2.1	3.6	1.3	3.1	1.3	2.7	0.5	
No. Ideas/Story	M	20.2	2.7	23.8	7.0	21.9	4.2	24.4	2.0	I < IV ^d ; III < IV ^b I < II ^b ; II > III ^d ; III < IV ^a
	W	23.2	5.2	28.1	3.7	24.4	4.1	28.0	3.9	
F Score	M	59.6	15.9	70.6	9.0	67.3	10.0	64.1	16.7	I < II ^a I < II ^d ; I < III ^a ; II > III ^b ; I < IV ^a
	W	52.5	9.8	67.9	10.3	60.5	10.5	66.2	13.1	
No. Cases	M	7		16		17		10		
	W	6		19		20		6		
	C	13		35		37		16		

^a $p < .10$.

^b $p < .05$.

^c $p < .02$.

^d $p < .01$.

Outgroup attitudes. In both men and women with projection constant and high, outgroup attitudes were significantly more favorable in those with high reversal preference than in those with low ($p < .05$), which was predicted. In men with reversal constant and low, those with high preference for projection had a significantly less favorable attitude toward the outgroup than did those with low projection scores ($p < .01$). The difference was in the same direction for women but did not reach an acceptable level of significance. The high projection-low reversal group had significantly less favorable outgroup attitudes than did the low projection-high reversal group of men ($p < .05$). Again, a difference in the same direction for women was not significant. These differences were in the predicted direction according to Hypotheses IV and V.

There were no significant differences in attitude toward the self-concept (ME) as a function of preference for reversal or projection, though in both men and women high-high scorers were less favorable to ME than high-low scorers ($p < .10$ for women); that is, with projection constant and high there tended to be more favorable self-attitudes associated with low reversal than with high reversal preference.

Ingroup-outgroup attitude differences. When outgroup attitude ratings were subtracted from ingroup ratings for each S and the differences averaged within each DPI group without regard to sign, both men and women showed maximum difference in the group with high preference for projection and low preference for reversal and less difference for the high reversal groups.

Scores of men and women have not been combined in some analyses because of significant differences in means of the two samples. However, differences between men and women were not significant for the mean ingroup-outgroup attitude differences, for mean ingroup-ME attitude differences, or for mean outgroup-ME attitude differences, as indicated in Table 6. Therefore, the two samples have been combined in analyzing these difference scores (C in Table 5).

The association of small ingroup-outgroup differences with reversal preference was demonstrated in the significant difference between the high reversal-high projection group and the low reversal-high projection group ($p < .01$). However, there was not a significant difference in the high reversal-low projection and low-reversal low projection groups. In short, the effects of reversal preference were clear only with projection preference high and constant. The comparison of the high projection-low reversal group and the low projection-high reversal group showed a significant difference in the expected direction ($p < .02$), a difference which cannot be attributed exclusively to reversal or to projection. The significant difference in the high projection-low reversal and low projection-low reversal groups ($p < .05$) suggests that with reversal constant and low, high preference for projection favors larger ingroup-outgroup differences. On the other hand, the expected effects of projection preference did not appear when reversal was constant and high and projection varied. These results suggest that when both reaction formation and projection were favored defenses, the former obscured the effects of the latter, so that effects of projection appeared only when reversal preference was low.

ME-outgroup differences. The mean differences in this pair of attitudes followed the same pattern as the ingroup-outgroup differences, and for the combined sample the same comparisons of DPI groups were significant except that the comparison of the high projection-low reversal group with low projection-low reversal group did not reach a significant level.

Ingroup-ME differences. Since there were significant positive correlations between attitudes toward the concept ME and toward the ingroup (Pearson r 's = .34 and .45 for men and women, respectively), it was not surprising to find that these attitudes tended to change together from one DPI group to another. There were, however, two significant differences for the total sample. The low projection-high reversal group showed greater ME-ingroup distance than the low-low group ($p < .01$). This

comparison reflects the association of reversal preference with increased difference in self- and ingroup ratings when compared to low reversal. No significant effects of projection on ME-ingroup differences were revealed in the group comparisons though high projection groups also showed somewhat greater ME-ingroup differences than did low projection groups when reversal was constant.

The combination of high reversal and high projection preference produced larger ingroup-ME differences than did any other condition and low preference for both defenses produced the smallest differences ($p < .01$ between these two groups). In other words, self-attitudes and ingroup attitudes were farther apart with combined preference for projection and reversal than with preference for neither.

Analysis of Separate Ingroup and Outgroup Concepts

Ingroup attitudes were defined for our purposes as a combination of attitudes toward family, friends, and Americans. Outgroup attitudes included reactions to Negro neighbor, Negro roommate, and foreigners. Predictions about the composite indices have been tested and reported. It is important, however, to examine two further questions: (a) Are the results characteristic of each component of the ingroup and outgroup indices? (b) Are there differences in the organization of ingroup components and of outgroup components as a function of defense preference? No predictions were made about this second point but it is clear that intracategory relationships must be described in any complete account of structures. For example, Bruner, Goodnow, and Austin (1956) and Pettigrew (1958) have reported individual differences in category breadth and others have assumed that prejudiced persons ignore distinctions within the outgroup. The present data provide information only about evaluative ratings of components of ingroup and outgroup categories, but it is of interest to note relations among these properties even though they are incomplete aspects of total ingroup-outgroup structure.

The relation of defense preference to differences in component ingroup-outgroup concepts. Mean attitude ratings for each of the six concepts listed above as well as mean difference in ratings of the concepts without regard to sign have been determined within each DPI group.

Relative distances between the attitudes involving Negroes (roommate and neighbors) and each of the ingroup concepts within DPI groups were those reported for the composite indices. In every one of the 12 comparisons (6 for men and 6 for women) the greatest Negro-ingroup distance was shown in the high projection-low reversal group.

In men the same was true of the three comparisons of ratings of FOREIGNER and each of the ingroup concepts. However, this was not the case for the women Ss who did not react to the concept FOREIGNER as opposite to the ingroup concepts. In the first place, the mean rating of this concept was related to DPI scores as were ingroup concepts, tending to become more favorable in the high projection groups and less favorable with high reversal preference. And, secondly, women with high reversal preference showed the greatest difference between FOREIGNER and AMERICAN, FOREIGNER and FAMILY, and FOREIGNER and FRIEND. This was the typical pattern of relations between ingroup concepts, as will be indicated in the next section.

In short, the a priori assignment of the concepts in question to ingroup and outgroup categories appears to have been justified in the case of men. For women attitudes toward the concept of FOREIGNER were evidently not operating like the attitudes toward the concept of the NEGRO.

Within-category distances. Table 6 indicates that differences were smallest between FRIEND and FAMILY, NEGRO ROOMMATE and NEGRO NEIGHBOR, AMERICAN and FAMILY, and AMERICAN and FRIEND, all within-category pairs. The FOREIGNER-NEGRO ROOMMATE and FOREIGNER-NEGRO NEIGHBOR pairs were also thought of as involving within-category comparisons, but the differences between those pairs of attitudes were slightly larger than the distance be-

TABLE 6
MEAN DIFFERENCES IN ATTITUDES
Total Sample ($N = 101$)

Pair	Mean	s
[Friend-Family]	1.9	2.5
[Neg Rm-Neg N]	5.1	4.8
[Amer-Family]	5.3	6.3
[Amer-Friend]	5.7	5.1
[For-Amer]	6.2	5.2
[For-Family]	8.1	6.2
[For-Friend]	8.3	2.0
[Neg N-For]	9.7	7.7
[Neg R-For]	9.7	8.5
[Neg N-Amer]	12.6	10.0
[Neg R-Amer]	12.7	10.6
[Neg N-Family]	15.7	10.0
[Neg R-Family]	15.8	11.0
[Neg R-Friend]	16.0	11.0
[Neg N-Friend]	16.4	10.0

tween FOREIGNER and AMERICAN, FOREIGNER and FRIEND, and FOREIGNER and FAMILY. Here again the concept of FOREIGNER was clearly marginal as an outgroup concept. Nevertheless, distances were in general smaller between components of the ingroup as originally defined and between components of the outgroup than across these categories, except where the FOREIGNER concept was involved.

When distances between ingroup attitudes were examined as a function of defense preferences, the following results were obtained. There were no significant differences between DPI groups in mean FAMILY and FRIEND attitude differences. However, the mean attitude difference between AMERICAN and FAMILY was significantly larger ($p < .01$) in the low projection-high reversal group than in the high projection-low reversal group. Differences between AMERICAN and FRIEND attitudes were also significantly larger ($p < .02$) for the low projection-high reversal group. The mean of the three ingroup differences was significantly larger for those preferring reversal than for projectors ($p < .05$).

The mean difference in attitudes toward NEGRO ROOMMATE and NEGRO NEIGHBOR was not significantly related to defense preference. However, the NEGRO ROOMMATE-

FOREIGNER comparison and the NEGRO NEIGHBOR-FOREIGNER comparison showed relations to DPI that were more like those we came to expect in comparisons between categories; i.e., attitude differences in the first pair were greater for the high projection-low reversal S s than for low-high S s ($p < .10$), and the high projection-high reversal group had greater mean difference in these attitudes than did the high-low group ($p < .05$). Mean attitude differences between NEGRO NEIGHBOR and FOREIGNER were also significantly different ($p < .05$) between high-lows and low-highs, the first group showing the larger mean difference.

In summary, attitudes toward the three ingroup concepts behaved in a similar manner and there was a tendency for high projectors to have smaller distances between ingroup concepts, while those favoring reversal had greater ingroup differences. For the three outgroup concepts, relations between NEGRO and FOREIGNER had the characteristics of between-category relations such as have been reported for ingroup-outgroup composite indices. High projection preference was related to greater differences and reversal to smaller differences. Since NEGRO ROOMMATE-NEGRO NEIGHBOR differences showed no relation to DPI scores, no generalization can be made about mean outgroup attitude differences as a function of DPI scores.

F Scores, Opposites, and Defense Preference

Scores on the California F Scale were not significantly related to any of the general opposites measures. They were, however, significantly related to a difference in ingroup and outgroup attitudes in both men and women ($p < .05$ for men and $< .01$ for women).

High F scores were associated with high preference for projection and with low preference for reversal. In Table 5 it will be seen that the mean F score of the high projection-low reversal group was higher than that of any of the other groups and was significantly higher in women than the

low projection-high reversal group ($p < .05$) or than the high projection-high reversal group ($p < .01$) which had the lowest F score in both men and women. In men the high-low group had higher F scores than did the high-high group ($p < .10$). This negative relation of F to reversal would not have been expected from theories of authoritarian personality structure, which have assumed a tendency to reversal preference as characteristic of the high F individual (Adorno et al, 1950).

Moreover, the fact that the combination of high projection with high reversal was associated with the lowest F scores in both men and women suggests as already noted that reversal may be a defense against the tendency toward projection in this group. The effects of reversal seem to have been dominant here as they were in determining ingroup-outgroup distance.

In other respects the F score results were the familiar ones. High F's had more favorable ingroup and less favorable outgroup attitudes as well as a greater distance

between these attitudes. The higher the F score, the smaller was the ingroup-ME distance and the greater the ME-outgroup distance.

Sex Differences: Hypothesis VI

The primary reason for analyzing the difference in reactions of men and women was to determine whether the samples could be combined. There was a sufficient number of significant differences to suggest that separate analyses should be made. As already indicated, in those cases where the differences were not significant, the samples were pooled.

Table 7 compares the average scores of men and women on the principal variables in the study. The following differences were significant at the .05 level or less. Ingroup, outgroup, and self-attitudes were more positive in women than in men. Of 13 opposites indices all but one showed women to have larger opposites scores than men and for that exception (opposites associa-

TABLE 7
MEAN SCORES MEN AND WOMEN

	Men			Women			P Difference
	Mean	s	N	Mean	s	N	
Outgroup Attitude ^a	75.8	21.9	52	89.0	23.9	51	<.01
Ingroup Attitude ^a	112.8	12.5	52	121.5	8.7	51	<.001
ME Attitude ^a	98.4	18.9	52	105.6	15.6	51	<.05
Ingroup-Outgroup	37.5	24.5	52	34.1	23.4	51	>.10
ME-Outgroup	28.9	20.8	52	25.5	22.1	51	>.10
Ingroup-ME	18.7	13.2	52	18.3	12.2	51	>.10
Bimodality	1.2	5.6	52	6.1	5.8	51	<.001
Av Diff	25.9	6.7	52	29.1	5.7	51	<.01
Opposites Assoc	32.6	13.1	50	32.6	14.7	47	>.10
Deviation Outgroup	27.0	13.6	52	32.4	11.5	51	<.05
Deviation Ingroup	42.3	11.5	52	49.9	8.3	51	<.001
% Hostile Ideas	4.3	1.6	51	3.4	1.4	51	<.01
No. Ideas/Story	22.7	4.9	51	26.2	4.7	51	<.001
F score	65.9	12.8	52	63.0	11.5	51	>.10
Reversal ^b	16.5	3.3	51	14.5	3.8	51	<.01
Projection ^b	14.5	3.9	50	16.0	4.1	51	<.10
Aptitude	125.0	18.9	48	122.5	19.8	49	>.10

^a High score, favorable attitude. Divide by 12 to determine average scale position on 11 point scale.

^b High score, low preference. Divide by 5 to determine average rank. These scores are derived from the Hostility pictures.

tions) men and women had equal scores.¹⁴ On 10 of the 13 opposites measures the women's scores were significantly larger than the men's at the .05 level.

A similar tendency to extreme reactions in women has been reported by Osgood, Suci, and Tannenbaum (1957, p. 234) and by Shapiro and Tagiuri (1959). It is to be noted, however, that the average distances between ingroup and outgroup, ME and outgroup, ME and ingroup were not significantly different in men and women.

Men showed a higher percentage of hostility items ($p < .01$); women produced a greater number of ideas on the Blacky stories ($p < .001$). Men gave higher preference ratings to projection than did women ($p < .05$, one-tailed predicted) and women were higher on reaction formation ($p < .01$). This last item supports Hypothesis VI.

Perhaps the most striking sex difference in this study is the fact that relations between variables were in general much stronger in men than in women, though in practically all cases results were in the same direction. Only relations of F scores to the other variables were clearer in women. But again, the results were uniformly in the same direction for men and women.

It is not possible to be sure of the reason for this result but two hypotheses suggest themselves. First, it may be that the DPI measures were more valid for men than for women. It has been suggested, for example, that Ss tend to interpret the name *Blacky*, the central figure of the DPI test of that name, as a male and that this makes it more difficult for women to identify with *Blacky*. On the other hand, the F scale was first standardized on women and may possibly be somewhat better adapted to them.

In the second place, it may be that women have less clearly crystallized and organized concepts in the areas which we have studied; this would result in more independence of reactions to different situations. Such a theory is compatible with the observation that there were consistent rela-

tions between opposites measures in women only *within* rather circumscribed areas; viz., between Semantic Differential reactions, between different bimodality scores, between opposites scores based on different lists responded to on different occasions, but very little consistency across these different opposites situations.

DISCUSSION

Characteristics of the defenses of reversal and projection, which have been observed in this study, must now be summarized and interpreted. High preference for *reversal* as a defense was associated with small differences between ingroup and outgroup attitudes, between ME and outgroup attitudes, and under certain conditions with low opposites scores. There was also a positive relation between this defense preference and favorable outgroup attitudes, less favorable self-attitudes, low projection scores, low F scores, low frequency of hostility items, and of total output of items in the stories written about the Blacky pictures. The difference in self- and ingroup attitudes was significantly greater when reversal preference was high and projection constant and low. Attitude distances between the three components of the ingroup concepts (FAMILY, FRIENDS, AMERICAN) were larger in the low projection-high reversal group than in the high projection-low reversal group.

On the other hand, a preference for *projection* tended to be related to greater differences between ingroup and outgroup attitudes, to more favorable ingroup attitudes, to less favorable outgroup attitudes, to a high percentage of hostility responses, to high F scores, and to high opposites scores under certain conditions. Projectors tended to rate ingroup concepts closer together on evaluative scales.

Styles of Dealing with Psychological Distance

An effort has been made to incorporate these results into a general theory in which psychological distance has been employed as a central construct in dealing with the

¹⁴ Only five opposites measures have been entered in the Table, but all were compared.

problems of motivation (Peak, 1955), perception (Peak, 1958d), attitude change, and generalization (Peak, 1958a, 1958b, 1958c).

In the motivation article (Peak, 1955) a motive state has been described as an activated structure consisting of two or more related events which are (a) close enough together in psychological space, by virtue of sharing a common dimension or because of associative linkage, to result in a relatively high probability of mutual activation of one event by arousal of the other, but (b) sufficiently disparate so that the two events are not reacted to as the same. For example, a system including the painful thought of the "D" I made on the last quiz and the pleasant thought of the grade of "A" may have such a relation. As long as the appropriate amount of disparity and association exists between the concept of "D" with its negative affect and the concept of "A" with its more positive affect, there will be a tendency for the arousal of one of these events to result in the arousal of the other one, with resulting activation of overt behavior. Moreover, this activity will tend to persist until the distance between the events is either increased or decreased markedly. Thus, anything which reduces the disparity between the terms of such a structure to the point where they are reacted to as the *same* will remove the motivational activity. This could happen, for example, if I actually received an A on an examination. It would also happen as a result of reacting defensively to the A and the D states as though they were not different. On the other hand, whatever increases the distance from the A state to the perceived state, like making an E on an examination, may increase the distance between the terms of the system to the point where one event, the thought of the grade of "E," no longer elicits the other, the thought of "A" with sufficiently high probability to maintain activation in the system. Such an increase in disparity may also be accomplished defensively and unrealistically by changing the perceived position of one or both terms of the disparity in such a way that their difference is exaggerated.

This, then, implies two basically different ways of reacting which may constitute defensive adjustments. In the one case, the distance or difference between two terms of a motive structure is reduced, causing activity which stems from this motive system to cease. The results of the present study suggest that those preferring reversal may have developed a style of reacting in this way to disparity between ingroup and outgroup attitudes. In the other case, psychological distance is presumed to increase in a manner compatible with the behavior of projectors in this study. It would be assumed that these styles of adjusting have been learned as methods of reducing disparity in particular situations and that they have become the favored styles of reacting where disparity could not be reduced directly by reaching goals.

When the results were viewed in this framework it became apparent that the theory had other implications which could be checked in our data. We have found reversal to be negatively related to the number of hostile items in the Blacky stories and projection related positively to those items. It was not at once apparent how these findings could be explained in terms of styles of dealing with distance. Then, the following hypothesis occurred to us. The number of hostility responses would be increased by greater total production of ideas; conversely, these scores would be decreased by restrictions on output. It also appeared reasonable to assume that a student who is writing stories for two minutes will usually operate under a self-administered set which prevents him from repeating the *same idea* within this brief period. Presumably, the person who tends to neglect differences will regard more ideas as the same. Consequently, such a person (with reversal preferences) would have fewer *different* ideas available and would consequently tend to produce less material within the two-minute period. This would result in lower hostility scores.

As already noted, the emergence of this hypothesis, after the data were collected and the main analysis completed, led us to count the number of "ideas" produced in the

course of writing the projective stories and the results tended to support the hypothesis by revealing a smaller number of ideas produced by those preferring reversal ($p < .10$ for men and $p < .05$ for women). The effect of projection on the number of ideas produced was not clear. However, the percentage of hostile ideas produced by those preferring projection was significantly greater than for those not preferring projection ($p < .05$ men; $p < .10$ women).

Blum (1954), Nelson (1955), and Erikson and Browne (1956) have all provided evidence of a greater tendency to perceptual defensiveness on the part of those who prefer the "repressive" mechanisms of reversal and avoidance. Such findings might be related to the present theory in the following manner. It would be expected that if distances and differences between parts of a stimulus picture involving conflict were habitually neglected, the patterns and contours of such a picture would not be readily identified. On the other hand, any tendency toward picking out and emphasizing differences should make for easier identification. The "repressor" would in this case be more likely to show perceptual defense.

Such individual tendencies to exaggerate or to underestimate distance recall the interesting observations of Klein (1951) and his colleagues which have shown certain *Anschauungen* to characterize individual styles of adjustment. In particular, the tendency of some (levellers) to emphasize sameness and of others (sharpeners) to see differences is close to the present formulation at the descriptive level.

Generality of Styles of Dealing with Distance

It is important to emphasize once again that neither our theory nor our data imply that the style of reacting to distance is necessarily general over all situations for all people. As already noted it has been shown that defense preferences themselves are not completely general (Blum, 1957). Moreover, while the present study has revealed correlations between opposites meas-

ures and between opposites and defense preferences when conflict pictures were used to identify preferences, the correlations were not all equally high nor were they all significantly positive. A more systematic sampling of situations is required before the question about degree of generality of these or any other characteristics can be answered satisfactorily (Brunswick, 1947). Meantime, it appears that there is indeed some tendency toward generality, for a large proportion of the correlations between measures of opposites were positive and very few were negative. Furthermore, those preferring projection did more often give evidence of exaggerating distance in comparison to nonprojectors and those preferring reversal more often underestimated distance.

Nevertheless, a more qualified statement of the theory is required and one which recognizes some of the complexities of describing psychological structure. It may be stated in this fashion: if projection is chosen as a defense in some situation, then distances between the concepts and attitudes involved in the motivational system in question have a tendency to be exaggerated; if reversal is preferred, distances tend to be reduced. However, the exaggeration of intercategory distance by the projector may be accompanied by smaller mean differences *within* certain categories. In the present study the high projection-low reversal group showed significantly smaller mean differences between the attitudes toward the concepts constituting the ingroup category (FRIENDS, FAMILY, AMERICANS) than did the low projection-high reversal group. There was, however, no evidence of a DPI-related difference between the outgroup concepts here used.

Now, the observation that smaller ingroup attitude differences¹⁵ and larger ingroup-outgroup differences characterized

¹⁵ There is a question as to whether the small ingroup differences for high projectors may be due in some degree to their more favorable ingroup attitudes which might impose a ceiling effect which would tend to reduce the variation in ingroup attitudes.

projectors need not embarrass the notion that certain manipulations of distance are characteristic of defensive styles, for a small mean ingroup difference may have the effect of increasing distance between ingroup and outgroup, the clarity of any such distinction between parts of a system resting as it does on the magnitude of differences between the components of any one category as well as on the distances between these components (ingroup) and the components of the other category (outgroup). Table 8 suggests that for projectors the mean intercategory distance¹⁶ and the mean intracategory distance (ingroup) are more different (difference in means = 36.0; $s_d = 4.8$) than was the case for the low projection-high reversal group (difference in means = 19.3; $s_d = 4.3$).

In short, if for the reversal group distances between the ingroup components are not distinguishable from the distances that separate ingroup and outgroup components, boundaries will not be clear between ingroup and outgroup. Indeed, such an organization approximates one instead of two categories, and suggests that there has been assimilation of ingroup and outgroup atti-

tudes making the former less favorable and the latter more favorable. On the other hand, contrast may be involved in the greater ingroup-outgroup attitude differences of projectors (Peak, 1958a).

SUMMARY

In a program concerned with psychological structure and attitude change it is necessary not only to find ways of discovering the existence of different structures but also to determine how they are reflected in attitudes and other psychological processes. Studies have been reported on the interrelation of measures of opposites structure, and the relation of such measures to preference for certain defense mechanisms, to the organization of ingroup and outgroup attitudes, and to other variables.

The psychological distance between events and the degree of their oppositeness was assumed to be a determinant of response in the following situations: (a) ratings on evaluative and potency scales of 19 concepts consisting of 6 pairs of opposite terms and 7 other terms, (b) the pattern of sorting statements about Negroes into categories, and (c) giving free associations to a number of words. Defense preferences were determined by the Blum Defense Preference Inventory. Attitudes toward the ingroup (friends, family, Americans), toward the outgroup (Negro roommate, Negro neighbors, foreigners), and

¹⁶ The IG-OG difference entered in Table 8 is the mean of the mean of the nine differences between three ingroup and three outgroup attitudes calculated for each S and divided by three. This procedure makes the intracategory and the intercategory differences comparable.

TABLE 8
WITHIN AND BETWEEN-CATEGORY DIFFERENCES IN ATTITUDES

	High Projection- Low Reversal Preference		P of Difference in Means	Low Projection- High Reversal Preference	
	Mean	s		Mean	s
[IG-OG]	46.1	24.4	<.05	34.4	20.5
[ME-OG]	33.4	24.1	<.10	24.8	20.1
[IG-ME]	17.1	13.4	>.10	20.1	12.1
[IG Diff]	10.1	8.9	<.05	14.9	11.2
N	35			37	

toward the self were inferred from ratings of concepts on Semantic Differential scales. Approximately 100 students served as Ss.

1. Preference for projection and for reaction formation or reversal were negatively correlated as had been predicted.

2. There was support for the prediction that high preference for projection and low preference for reversal would be related to a tendency to opposites structuring, and these relations were clearest when the defense preference was determined from the Blacky pictures which reflected conflict in an individual.

3. As predicted, greater distances between ingroup and outgroup attitudes were positively associated with a preference for projection, except when Ss were high in preference for both reversal and projection. Projection was also related to favorable ingroup attitudes (significant in women), to unfavorable outgroup attitudes (significant in men), and to larger differences in ME-outgroup attitudes.

4. As predicted, high preference for reversal was positively related to favorable attitudes toward the outgroup in both men and women. There was also a significant negative relation of reversal scores with ingroup-outgroup distance, as well as with ME-outgroup distance.

5. It was also shown that those preferring reversal tended to produce fewer total ideas in writing the Blacky stories than did those not in that DPI category. This is also interpreted as depending on a style of dealing with distance.

6. It is proposed that these different correlates of projection and of reversal preference may be understood by a theory which assumes that when projection is adopted as a defense, distances between attitudes (and concepts) involved in a motive system are increased by contrast to the point where relations between the concepts (ingroup and outgroup) are disrupted and motivation reduced. On the other hand, when reversal is the preferred defense, motivating activity is removed defensively by treating differences between these events as though they were negligible, thereby producing assimilation and reducing disparity in the system below the amount that must be present in order for activity to continue.

7. Scores on the California F Scale had the expected positive relations to ingroup-outgroup attitude difference. High F scores were associated with high preference for projection but with low preference for reversal. This correlation with reversal contradicts the usual assumption of a positive relation between these variables.

8. As predicted, women tended to prefer reaction formation as a defense more often than did men and men preferred projection more often than women did. Women had consistently higher average opposites scores than men on every measure, except opposites associations. The different relations between different variables tended to be weaker for women than for men with the exception of relations to F scores.

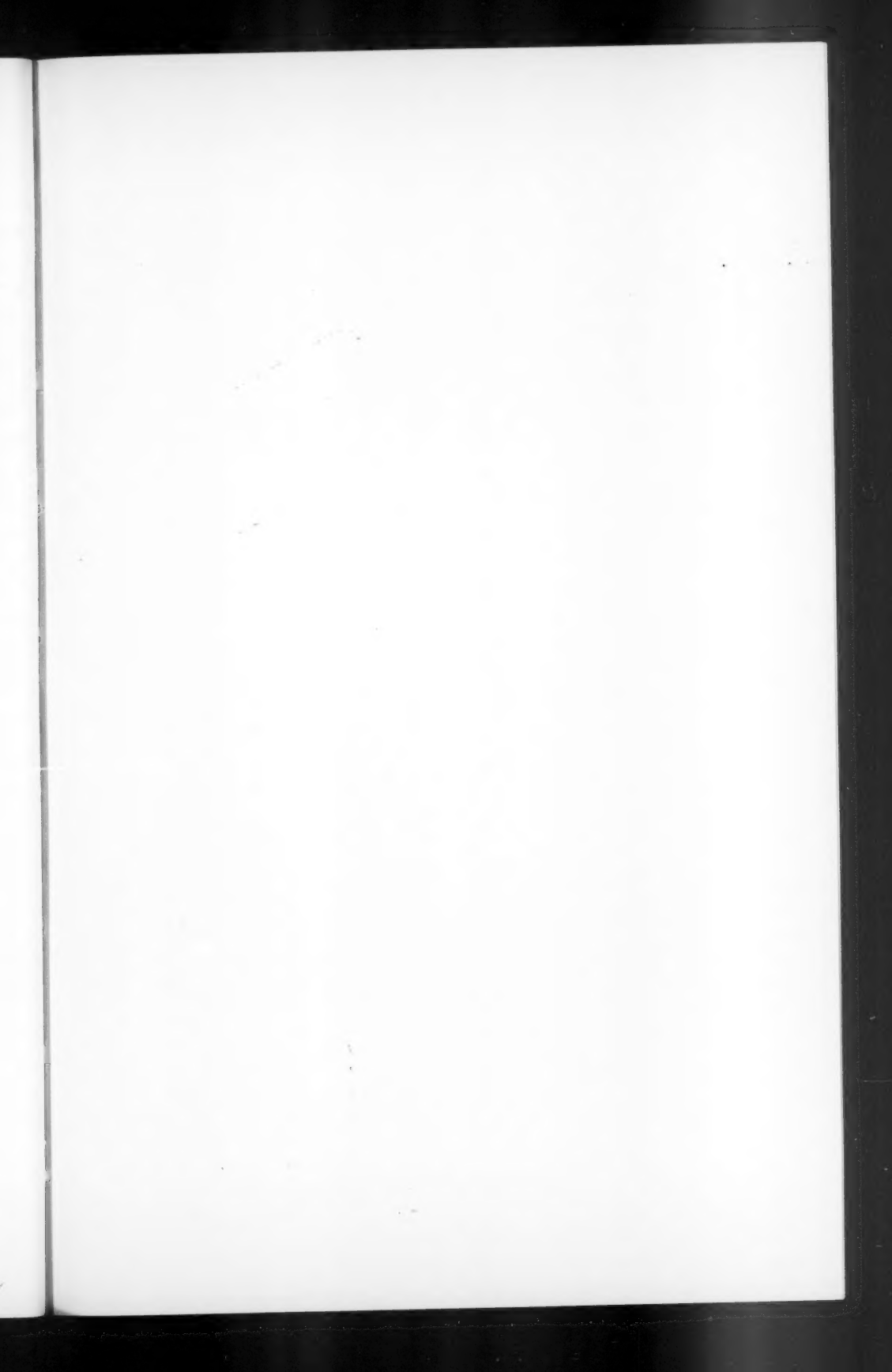
REFERENCES

- ADORNO, T. W., FRENKEL-BRUNSWICK, E., LEVINSON, D. J., & SANFORD, R. N. *The authoritarian personality*. New York: Harper, 1950.
- BLUM, G. S. *The Blacky Pictures: A technique for the exploration of personality dynamics*. New York: Psychological Corp., 1950.
- BLUM, G. S. An experimental reunion of psychoanalytic theory with perceptual vigilance and defense. *J. abn. soc. Psychol.*, 1954, **49**, 94-98.
- BLUM, G. S. Defense preferences in four countries. *J. Proj. Tech.*, 1956, **20**, 33-41.
- BLUM, G. S. Assessment measures. Unpublished manuscript, 1957.
- BLUM, G. S., & HUNT, H. F. The validity of the Blacky Pictures. *Psychol. Bull.*, 1952, **49**, 238-250.
- BRUNER, J. S., GOODNOW, J.-J., & AUSTIN, G. A. *A study of thinking*. New York: Wiley, 1956.
- BRUNSWICK, E. *Systematic and representative design of psychological experiments*. Berkeley: Univer. California Press, 1947.
- DIXON, W. J., & MASSEY, F. J. *Statistical analysis*. New York: McGraw-Hill, 1951.
- ERIKSEN, C. W., & BROWNE, C. T. An experimental and theoretical analysis of perceptual defense. *J. abn. soc. Psychol.*, 1956, **52**, 224-230.
- GOLDSTEIN, S. A projective study of psychoanalytic mechanisms of defense. Unpublished doctoral dissertation, Univer. of Michigan, 1952.
- HOVLAND, C. I., & SHERIF, M. Judgmental phenomena and scales of attitude measurement: Item displacement in Thurstone scales. *J. abn. soc. Psychol.*, 1952, **47**, 822-832.
- KATZ, D. MCCLINTOCK, C., & SARNOFF, I. Measurement of ego-defense related to attitude change. *J. Pers.*, 1957, **25**, 465-474.
- KLEIN, G. S. The personal world through perception. In R. R. Blake & G. V. Ramsey, (Eds.), *Perception; An approach to personality*. New York: Ronald, 1951.
- KREEZER, G., & DALLENBACH, K. W. Learning the relation of opposition. *Amer. J. Psychol.*, 1929, **41**, 432-441.
- NELSON, S. E. Psychosexual conflicts and defenses in visual perception. *J. abn. soc. Psychol.*, 1955, **51**, 427-433.
- OSGOOD, C. E. Development and application of semantic differential. Unpublished manuscript, 1955.
- OSGOOD, C. E., SUCI, G. E., & TANNENBAUM, P. H. *The measurement of meaning*. Urbana: Univer. Illinois Press, 1957.
- PEAK, H. Attitude and motivation. In M. Jones (Ed.), *Nebraska symposium on motivation*. Lincoln: Nebraska Univer. Press, 1955.
- PEAK, H. Psychological structure and psychological activity. *Psychol. Rev.*, 1958, **65**, 325-347. (a)
- PEAK, H. Generalization of attitude change within an opposites structure. I. *USN tech. Rep., ONR, Nonr 1224 (10) NR 171-039*, June 1958, No. 3. (b)
- PEAK, H. Generalization of attitude change within an opposites structure. II. *USN tech. Rep., ONR, Nonr 1224 (10) NR 171-039*, June 1958, No. 4. (c)
- PEAK, H. Psychological structure and person perception. In R. Tagiuri & L. Petrullo (Eds.), *Person perception and interpersonal behavior*. Stanford: Stanford Univer. Press, 1958. (d)
- PEAK, H. Attitudes, opposites structuring and F scores. *USN tech. Rep., ONR, Nonr 1224 (10) NR 171-039*, May 1959, No. 5. (a)
- PEAK, H. Some correlations of opposites structure. *USN tech. Rep., ONR, Nonr 1224 (10) NR 171-039*, June 1959, No. 7. (b)
- PETTIGREW, T. F. The measurement and correlates of category width as a cognitive variable. *J. Pers.*, 1958, **26**, 532-544.
- RIESS, B. F. Genetic changes in semantic conditioning. *J. exper. Psychol.*, 1946, **36**, 143-152.
- SHAPIRO, D., & TAGIURI, R. Sex differences in inferring personality traits. Unpublished ONR Report, 1959.
- WOODWORTH, R. S. *Experimental psychology*. New York: Holt, 1938.

(Received August 10, 1959)

6

0



6

0

0

0

0

